

in water during twelve hours, he found that the latter had absorbed 69 grains, the former only 51. Hence he thinks considerable advantage may be expected from stripping off a portion of the bark from resinous trees, all round their trunks, close to the surface of the ground, in the beginning of the summer preceding the autumn in which they are to be felled. He even thinks it probable, that the timber would be improved by letting them stand a second year; although he admits that some loss would be sustained by the slow growth of the trees in the second summer.

It may, Mr. Knight says, be suspected, that the increased solidity of the fir-wood above described was confined to the part contiguous to the decorticated space; but it is well known that taking off a portion of bark round the branch of a fruit-tree, occasions in the succeeding season an increased quantity of blossoms on every part of that branch. This increase probably owes its existence to a stagnation of the true sap, extending to the extremities of the branch; and it may therefore be expected that the alburnous matter of the trunk and branches of a resinous tree will be rendered more solid by a similar operation.

*A new Demonstration of the Binomial Theorem, when the Exponent is a positive or negative Fraction. By the Rev. Abram Robertson, A.M. F.R.S. Savilian Professor of Geometry in the University of Oxford. In a Letter to Davies Giddy, Esq. F.R.S. Read June 5, 1806. [Phil. Trans. 1806, p. 305.]*

This paper is merely an extension of one formerly communicated to the Society by Mr. Robertson, and printed in the Philosophical Transactions for the year 1795. It is, the author says, so far as relates to the raising of integral powers, the same as that paper, and is confessedly new only to the extent mentioned in the title, namely, that the present demonstration is applicable when the exponent is a positive or a negative fraction. The nature of the paper is obviously such, as to render it unsusceptible of abridgement.

*New Method of computing Logarithms. By Thomas Manning, Esq. Communicated by the Right Hon. Sir Joseph Banks, K.B. P.R.S. Read June 5, 1806. [Phil. Trans. 1806, p. 327.]*

If, Mr. Manning observes, there existed as full and extensive logarithmic tables as ever will be wanted, and of whose accuracy we were absolutely certain, and if the evidence for that accuracy could remain unimpaired through all ages, then any new method of computing logarithms would be totally superfluous, so far as concerns the formation of tables, and could only be valuable indirectly, and inasmuch as it might show some curious and new views of mathematical truth. But the above kind of evidence is necessarily impaired by the lapse of time, even while the original record remains, and still more when the record must from time to time be renewed

by copies : nor is the uncertainty of copies being accurately taken greater in any case than in that of copied numbers. It is consequently useful to contrive new and easy methods for computing new tables, or for examining those we already have ; and it is particularly useful to contrive methods by which any part of a table may be verified, independently of the rest ; for by examining parts taken at random, we may, in some cases, acquire a moral certainty respecting the accuracy of the whole.

Among the various methods of computing logarithms, none, our author says, possesses the advantage of forming them with tolerable ease, independently of each other, by means of a few easy bases. This desideratum, he trusts, the method described by him will supply ; being very easy of application, as it requires no division, multiplication, or extraction of roots, and has its relative advantages highly increased by increasing the number of decimal places to which the computation is carried.

The chief part of the work, according to the method laid down by Mr. Manning, consists in merely setting down a number, under itself, removed one or more places to the right, and subtracting ; then repeating this operation. This method, consequently, is very little liable to error ; and may be performed, after a few minutes instruction, by any one who is able to subtract. Besides, from the commodious situation of the figures, the work may be revised with great rapidity. It is as easy for large numbers as for small ones ; and, on an average, about 27 subtractions will furnish a logarithm accurately to ten places of decimals.

A similar method, by addition only, may, Mr. Manning says, in some cases, be used with advantage ; and various artifices may be occasionally employed to shorten the computation, both in the method by subtraction and in that by addition : the two methods may also be sometimes advantageously combined together. It must, however, be observed, that the method by subtraction has many advantages over that by addition ; particularly as from its being more simple, and more completely mechanical, it may be confided to the most unskilful persons without much danger of error.

Various examples of our author's mode of computation and rules for conducting it are given, for which we must necessarily refer to the paper itself.

*Description of the Mineral Basin in the Counties of Monmouth, Glamorgan, Brecon, Carmarthen, and Pembroke. By Mr. Edward Martin. Communicated by the Right Hon. C. F. Greville, F.R.S. Read May 22, 1806. [Phil. Trans. 1806, p. 342.]*

The basin, which is here described by Mr. Martin, is delineated in a map annexed to the paper ; it is formed of limestone, and contains all the strata of coal and iron ore in South Wales : it is upwards of 100 miles in length ; and its average breadth in the counties of Monmouth, Glamorgan, Carmarthen, and part of Brecon, is